



Unidad SIG

IDEARQ: a Cultural Heritage SDI for Archaeological Research Data in the Iberian Peninsula

Carlos Fernández¹, Rocío Gutiérrez¹, Ernesto Salas¹, Isabel del Bosque¹, Juan Manuel Vicent²,
Alfonso Fraguas², Antonio Uriarte²

1-Unidad SIG (CCHS – CSIC). Spanish National Research Council, Madrid, Spain

2-Instituto de Historia (CCHS – CSIC). Spanish National Research Council, Madrid, Spain

Generic Cultural
Heritage Data fit
within INSPIRE



Cultural Heritage
Application Schema

Publish
archaeological data
in an interoperable
way



IDEARQ

GIS Lab | Instituto de Historia
Center for Social Sciences and Humanities
Spanish National Research Council

The Cultural Heritage Application Schema

1. Cultural Heritage inside INSPIRE

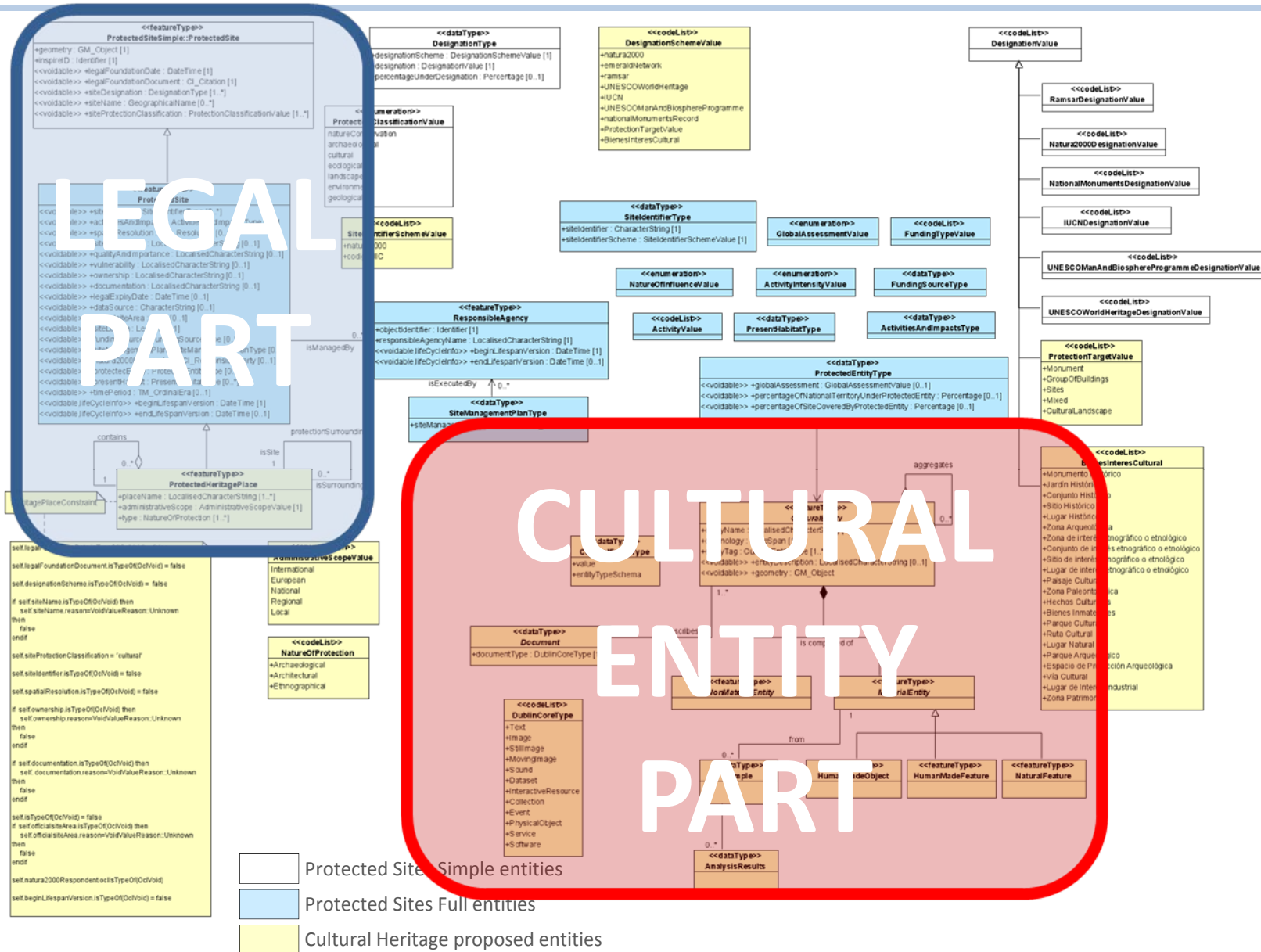
Cultural Heritage as part of the Protected Sites Data Spec.

INSPIRE defines a *protected site* as an “*area designated or managed within a framework of international, Community and Member States' legislation to achieve specific conservation objectives*”.

ANNEX I

1. Coordinate reference systems
2. Geographical grid systems
3. Geographical names
4. Administrative units
5. Addresses
6. Cadastral parcels
7. Transport networks
8. Hydrography
- 9. Protected sites**

2. The Cultural Heritage Application Schema



2. The Cultural Application Schema

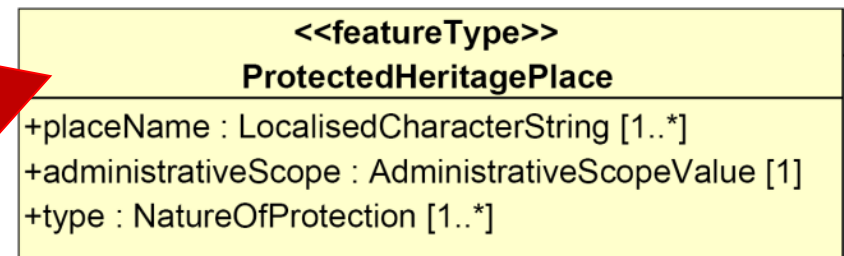


Legal part: ProtectedHeritagePlace

New class: ProtectedHeritagePlace, built as an extension of ProtectedSites.

Area dedicated to the protection of cultural resources and managed through legal and administrative means.

It is a subclass of *ProtectedSite* entity:
Establishes a subtype of protected site, specifically related to cultural features.



2. The Cultural Application Schema

```
self.legalFoundationDate.isTypeOf(OcIVoid) = false
self.legalFoundationDocument.isTypeOf(OcIVoid) = false
self.designationScheme.isTypeOf(OcIVoid) = false
if self.siteName.isTypeOf(OcIVoid) then
  self.siteName.reason=VoidValueReason::Unknown
then
  false
endif
self.siteProtectionClassification = 'cultural'
self.siteIdentifier.isTypeOf(OcIVoid) = false
self.spatialResolution.isTypeOf(OcIVoid) = false

if self.ownership.isTypeOf(OcIVoid) then
  self.ownership.reason=VoidValueReason::Unknown
then
  false
endif

if self.documentation.isTypeOf(OcIVoid) then
  self.documentation.reason=VoidValueReason::Unknown
then
  false
endif

self.isTypeOf(OcIVoid) = false
if self.officialSiteArea.isTypeOf(OcIVoid) then
  self.officialSiteArea.reason=VoidValueReason::Unknown
then
  false
endif

self.natura2000Respondent.ocIsTypeOf(OcIVoid)
self.beginLifespanVersion.isTypeOf(OcIVoid) = false
```

siteProtectionClassification

<<enumeration>>	
ProtectionClassificationValue	
natureConservation	
archaeological	
cultural	
ecological	
landscape	
environment	
geological	

siteProtectionClassification

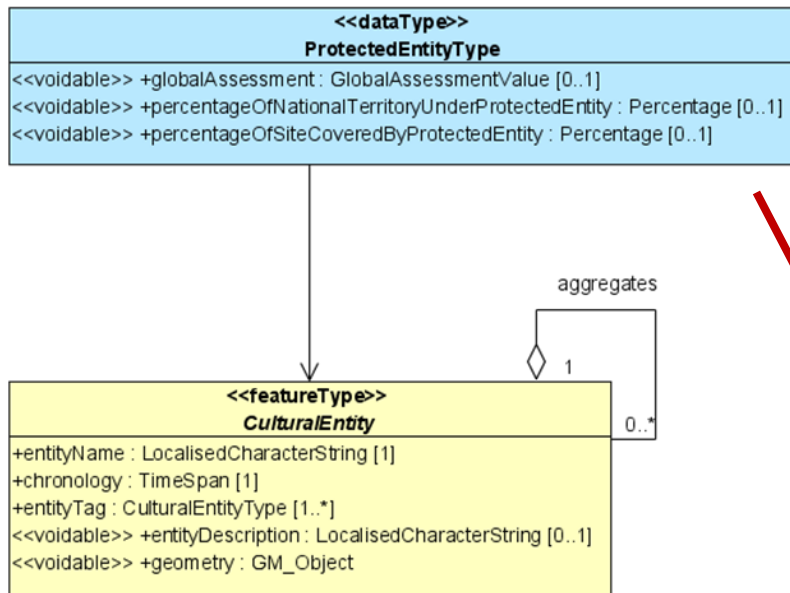
<<codeList>>	
NatureOfProtection	
+Archaeological	
+Architectural	
+Ethnographical	



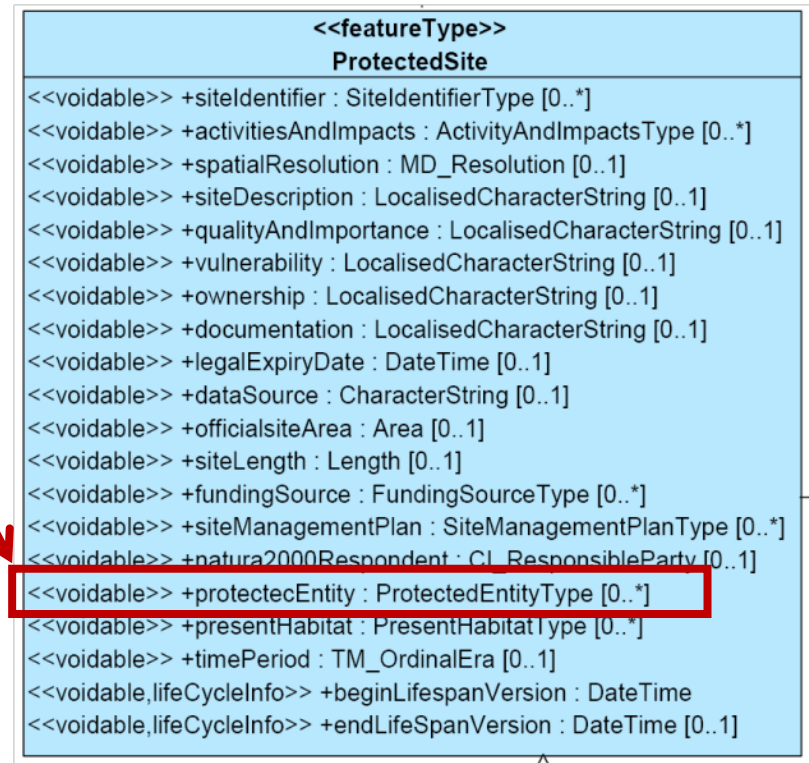
New categories
can be added

2. The Cultural Application Schema

A Cultural Entity is any real-world feature result of human action protected by a legal figure

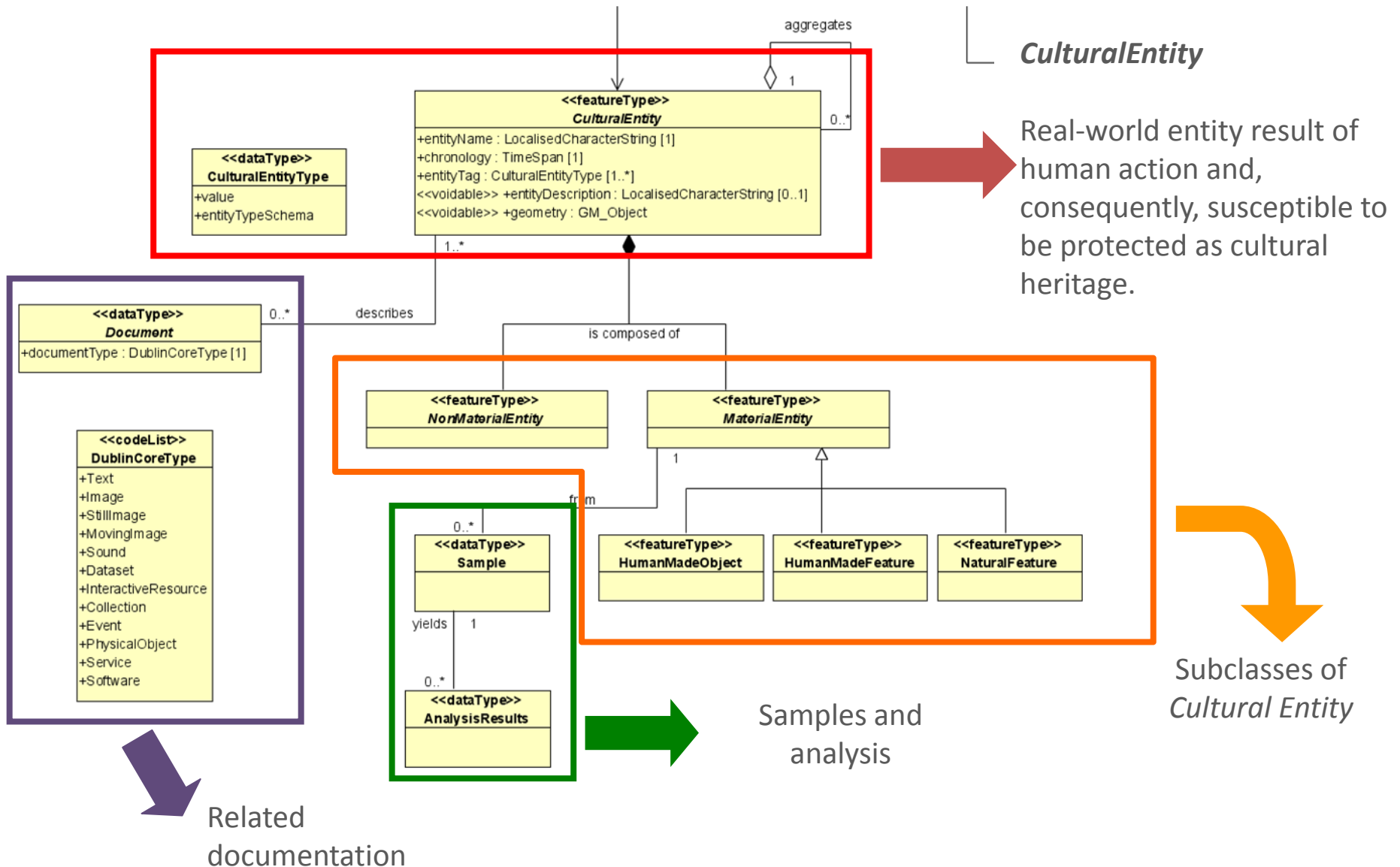


CulturalEntity relates to **ProtectedEntityType** (preexisting class in the *Data Specification on Protected Sites*), that is, any kind of a real world feature susceptible of legal protection.



ProtectedEntityType is related to **ProtectedSite**.

2. The Cultural Application Schema



IDEARQ

Archaeological Research Spatial Data Infrastructure

<http://www.idearqueologia.org/>

3. IDEARQ

OGC Services: WMS

Map Viewer



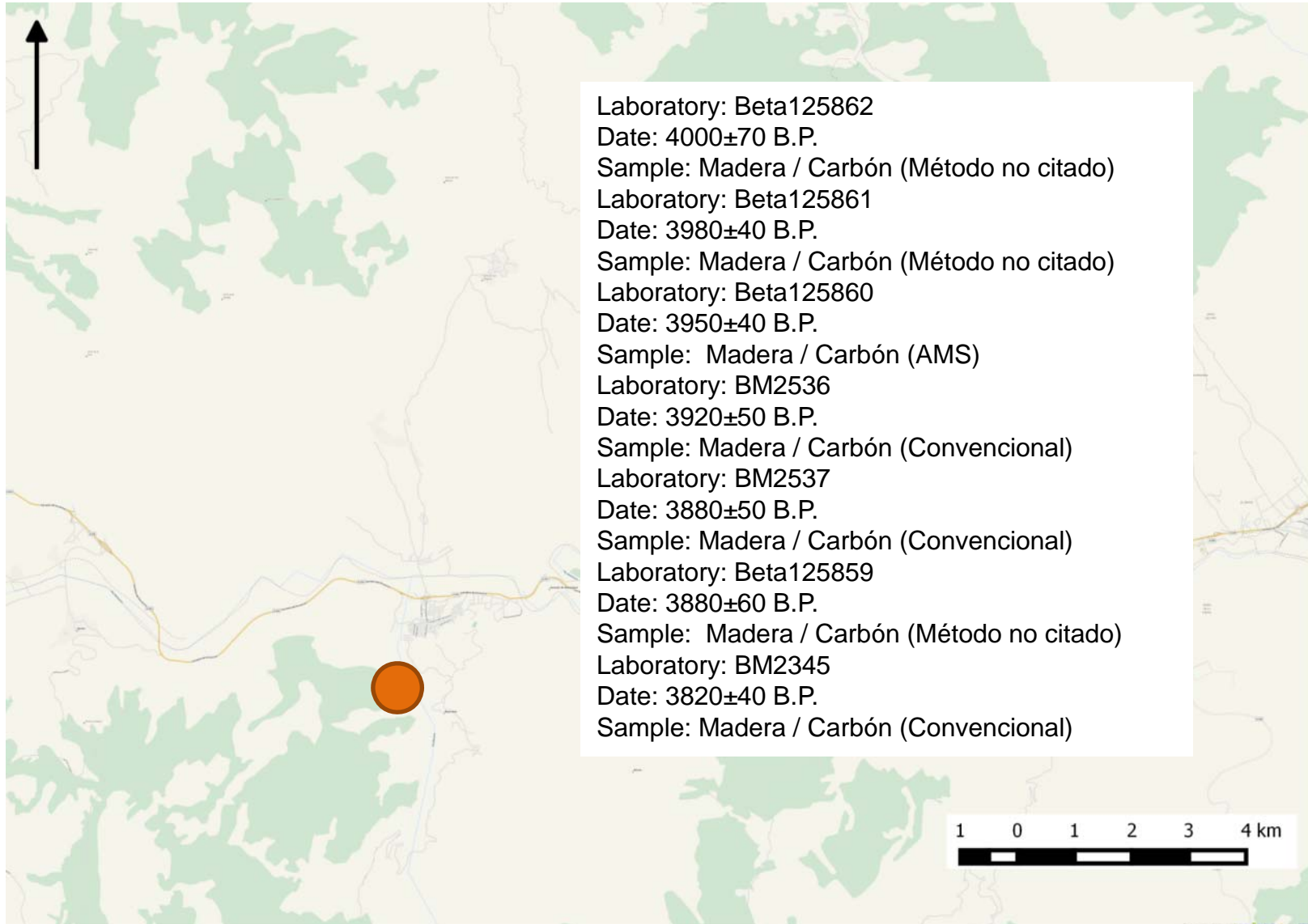
Radiocarbon
Dates

Levantine
Rock Art

Archaeo-
metallurgical
analysis

3. IDEARQ

Radiocarbon Dates

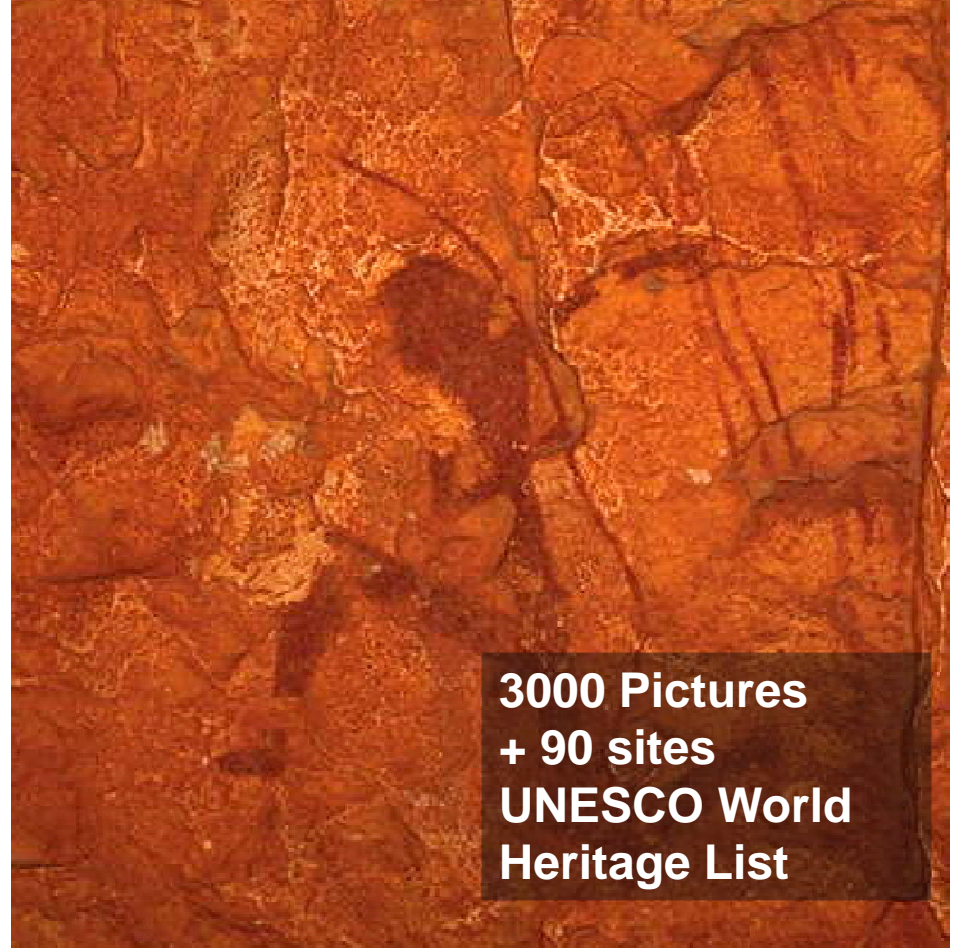


3. IDEARQ

Corpus of Levantine Rock Art (CPRL)



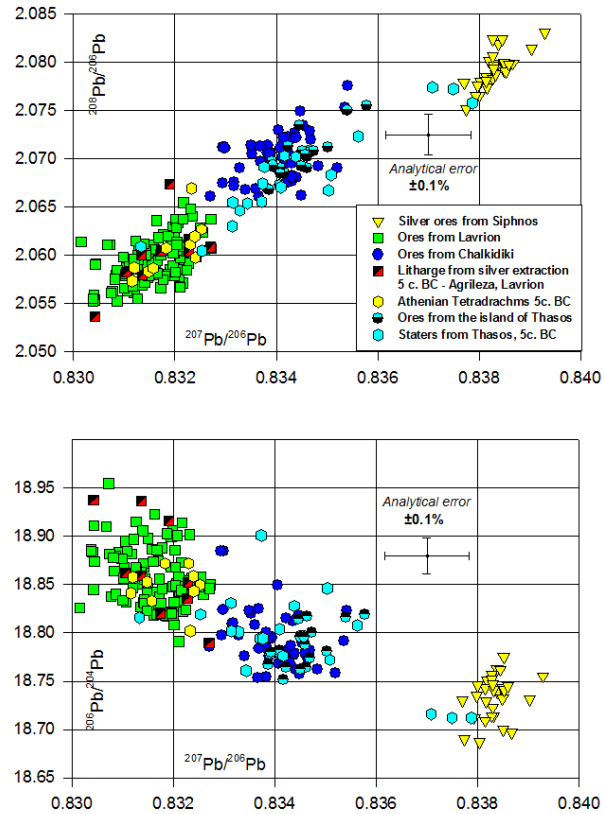
Cova Remigia (Ares del Maestrat, Castellón-Spain)



Archer. La Saltadora (Les Coves de Vinromá, Castellón-Spain).

3. IDEARQ

Archaeometallurgy



Lead isotope analysis results

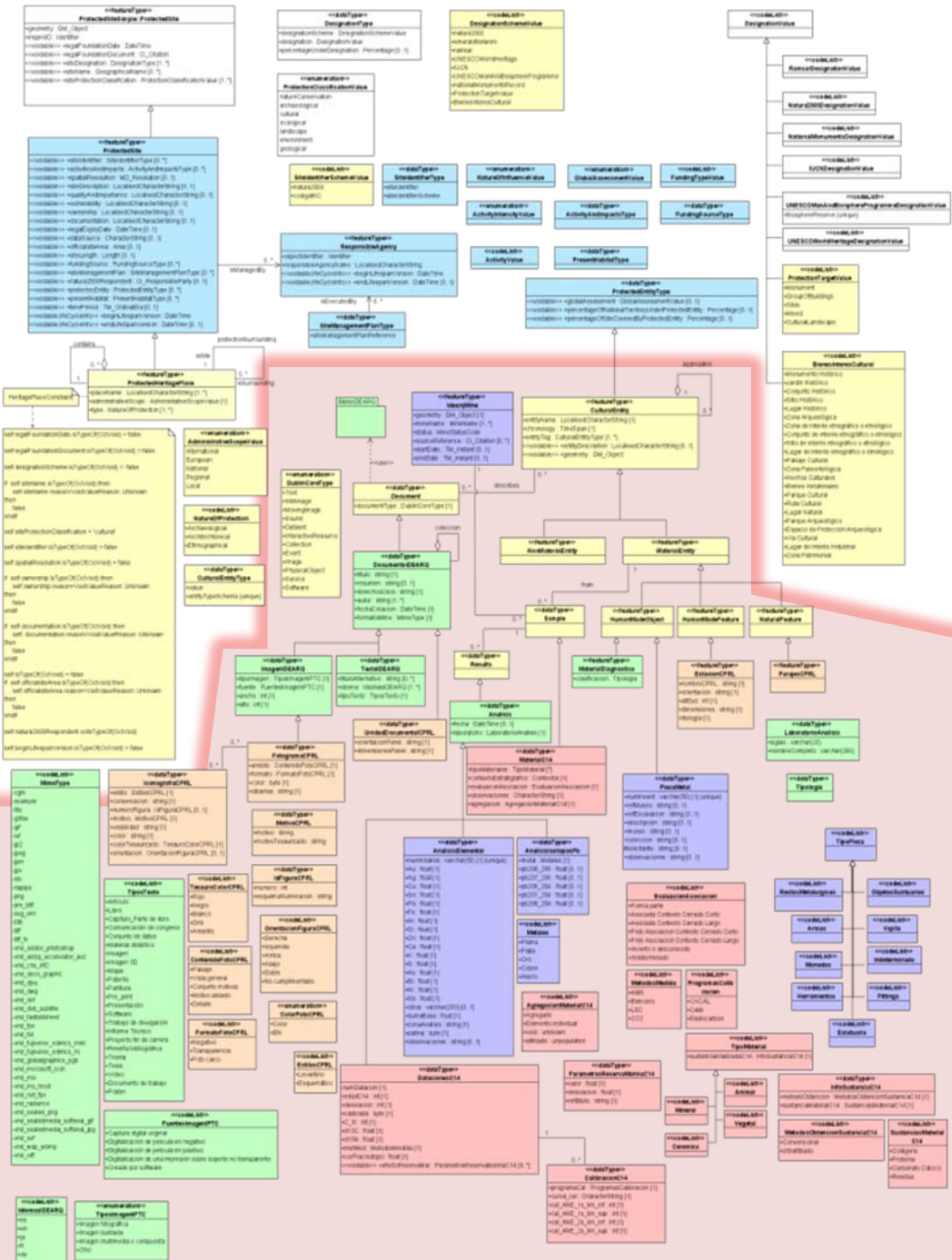


Lead Ingots with consular marks

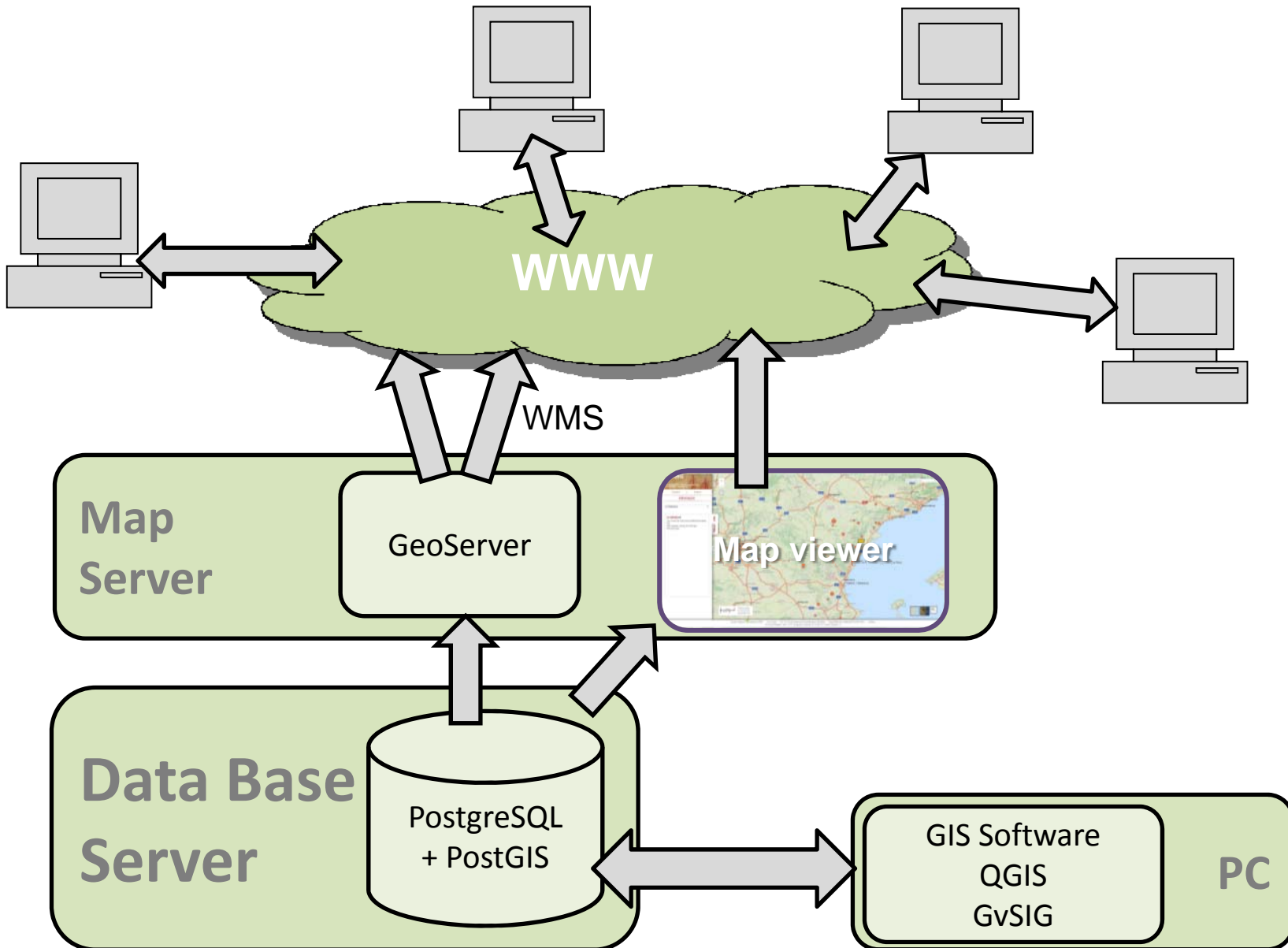
IDEARQ UML class diagram:

Extension of the Cultural Heritage
Application Model.

Extendable to be able to include
more data collections in the
future.



3. IDEARQ



3. IDEARQ

Web Map Service and dataset metadata (ISO 19115)

Three point geometry layers based on database views

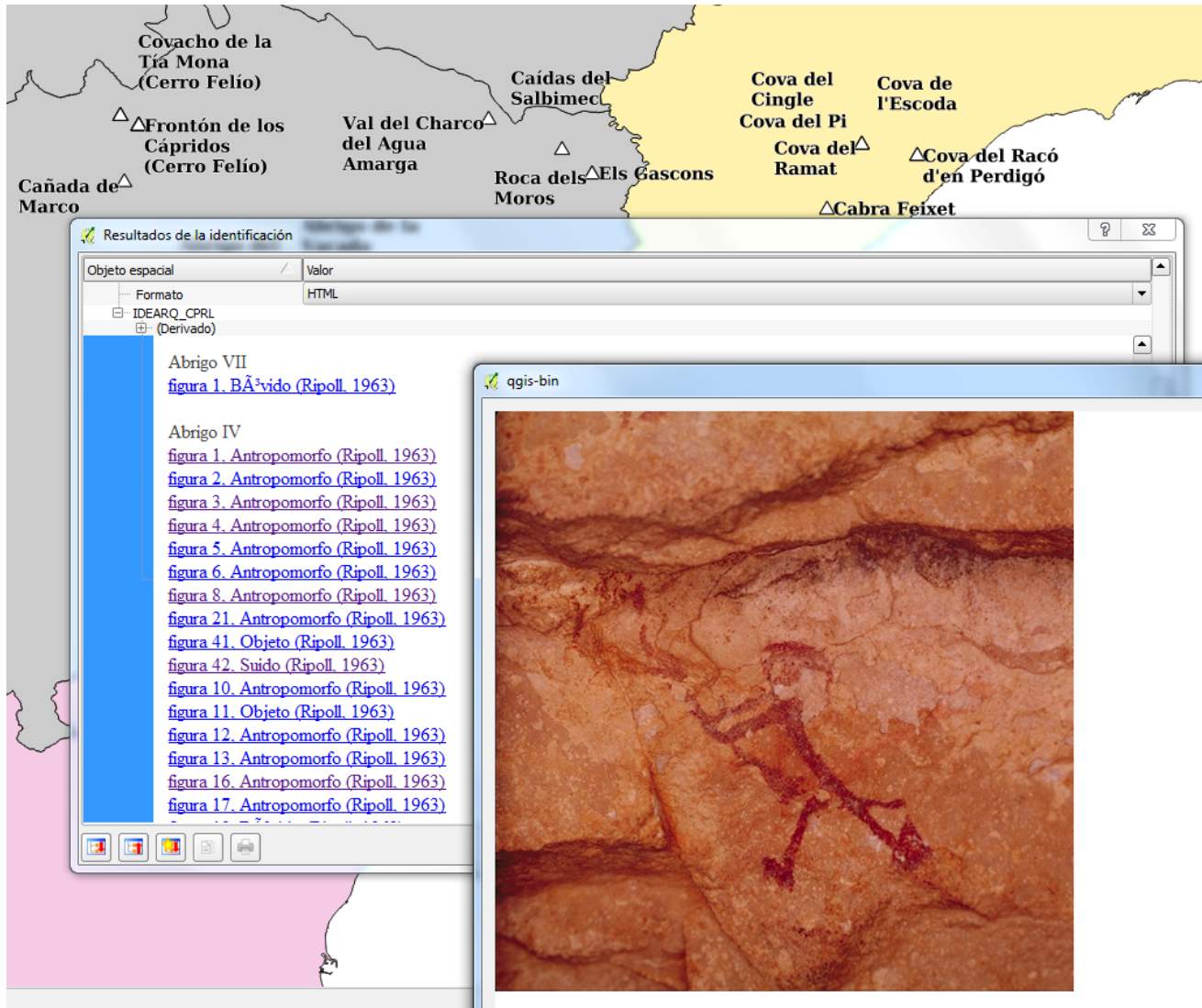
Layers

IDEARQ_Capa_Base_Yacimientos_Arqueologicos: summarizes the information of all datasets offering generic information about the archaeological sites, their description, chronology, typology (human settlement, cemetery, industrial activity, etc.)

IDEARQ_C14: adds all the information related to every radiocarbon date, the resultant age along with the standard deviation, the kind of material dated (bone, charcoal, etc.).

IDEARQ_CPRL: holds a description of every picture within the CPRL, specifying the representation (cattle, human figure, etc.).

3. IDEARQ



3. IDEARQ

1. Connects directly to database
2. Created with Javascript and Openlayers 2
3. Due to amount of archaeological sites (nearly 2000). Cluster Strategy used
4. Scale – limited to 1:200.000
5. Base layers
 - OpenStreetMaps across MapQuest Tiles
 - Bluemarble and Landsat composition offered by GIS Lab
6. Geolocation tool “Nominatim Search”
courtesy of Map Quest

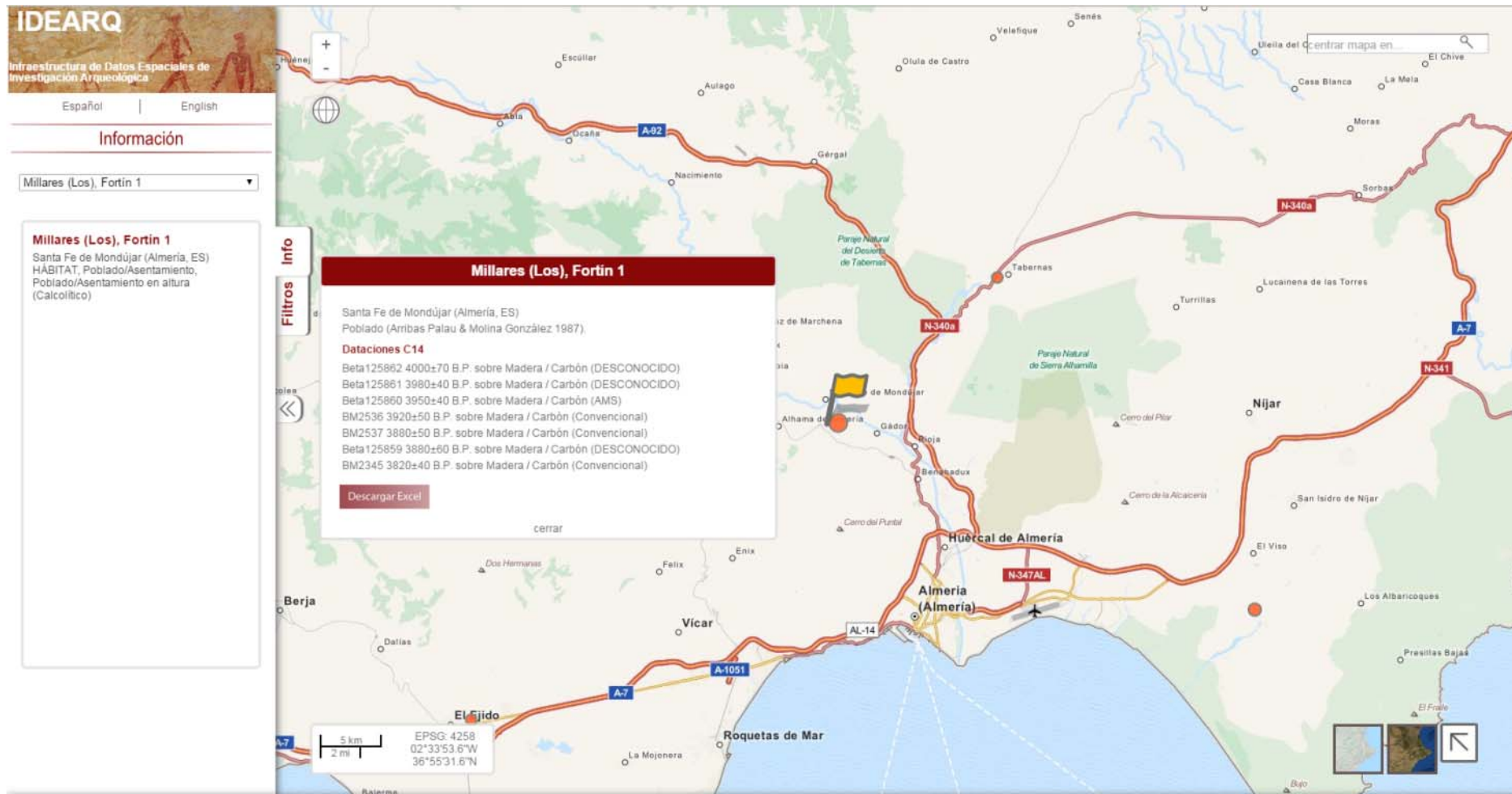


<http://www.idearqueologia.org/>

3. IDEARQ



3. IDEARQ



3. IDEARQ

IDEARQ

Traductor de Idiomas / Translated by
Español | English

Información

La Saltadora
Las Caves de Viromà (Castellón/Castelló, ES)
Arte rupestre, Atenga (Cronología desconocida)

Filtros

Info

La S

Selección de esta superposición

Corpus de Pintura Rupestre Levantina

Abrijo I
Figura 1. Cérvido (Duran i Sanpere, 1920)
Figura 2. Ovis (Duran i Sanpere, 1920)

Abrijo II
Figura 3b. Ovis (Duran i Sanpere, 1920)
Figura 3c. Ovis (Duran i Sanpere, 1920)
Figura 4. Ovis (Duran i Sanpere, 1920)
Figura 5. Ovis (Duran i Sanpere, 1920)
Figura 6. Ovis (Duran i Sanpere, 1920)
Figura 7. Cuadrupedo indeterminado (Duran i Sanpere, 1920)
Figura 8. Antropomorfo (Duran i Sanpere, 1920)

Abrijo II: figura 1, Cuadrupedo Indeterminado (Duran i Sanpere, 1920)

Image 6 of 8

161.111.47.64/idearq/visualizador_idearq/index.html

Tecnología 3D por el Instituto de Investigación Científica
Desarrollado por Unidad de Investigación Científica (UIC) - CCHB-CIC - CCHB

Resolución máxima: 1280 x 1024. Formato: PNG. Tipo: Imagen. Formato: 11.

3. IDEARQ



Bibliographic references

Fernández Freire, C.; Del Bosque González, I.; Vicent García, J.M.; Pérez Asensio, E.; Fraguas Bravo, A.; Uriarte González, A.; Fábrega Álvarez, P.; Parcero Oubiña, C.; - *"A Cultural Heritage Application Schema: Achieving Interoperability of Cultural Heritage Data in INSPIRE."* - International Journal of Spatial Data Infrastructures Research 8 : 74–97. – 2013

Fernández Freire, Carlos, César Parcero-Oubiña, and Antonio Uriarte González, eds. *A Data Model for Cultural Heritage within INSPIRE*. CAPA: Cadernos de Arqueoloxía E Patrimonio. Laboratorio de Arqueoloxía e Formas Culturais (GIArPA), IIT, USC, 2013



Unidad SIG

<http://www.idearqueologia.org/>

Available by the end of september

Carlos Fernández Freire

Centro de Ciencias Humanas y Sociales (CCHS)
Consejo Superior de Investigaciones Científicas (CSIC)
carlos.ffreire@cchs.csic.es